CONTENTS

PAGE

STEWART, R. R., NICHOLLS, J. G. AND ADAMS, W. B. Na^+, K^+ and Ca^{2+} currents in identified leech neurones in culture 1

METCALFE, J. D. AND BUTLER, P. J. The use of alpha-methyl-*p*-tyrosine to control circulating catecholamines in the dogfish *Scyliorhinus canicula*: the effects on gas exchange in normoxia and hypoxia 21

REYNOLDS, STUART E. AND BELLWARD, KAREN. Water balance in *Manduca sexta* caterpillars: water recycling from the rectum. 33

WEYRAUTHER, E., ROEBROEK, J. G. H. AND STAVENGA, D. G. Dye transport across the retinal basement membrane of the blowfly *Calliphora erythrocephala*. 47

CHIAPPINELLI, V. A., HUE, B., MONY, L. AND SATTELLE, D. B. κ-Bungarotoxin blocks nicotinic transmission at an identified invertebrate central synapse 61

ASHFORD, M. L. J., BODEN, P., RAMSEY, R. L. AND USHERWOOD, P. N. R. Enhancement of desensitization of quisqualate-type glutamate receptor by the dissociative anaesthetic ketamine 73

DELP, M. D., LAUGHLIN, M. H. AND ARMSTRONG, R. B. No relationship between progressive muscle hyperaemia and temperature in exercising rats 87

WELLS, R. M. G., GRIGG, G. C., BEARD, L. A. AND SUMMERS, G. Hypoxic responses in a fish from a stable environment: blood oxygen transport in the antarctic fish *Pagothenia borchgrevinki* 97

DOOLAN, JANE M. AND YOUNG, DAVID. Relative importance of song parameters during flight phonotaxis and courtship in the bladder cicada *Cystosoma saundersii* 113

SPECKNER, W., SCHINDLER, J. F. AND ALBERS, C. Age-dependent changes in volume and haemoglobin content of erythrocytes in the carp (*Cyprinus carpio* L.) 133

RAMIREZ, J. M. AND PEARSON, K. G. Distribution of intersegmental interneurones that can reset the respiratory rhythm of the locust 151

HANSSEN, ROBERT G. J. M., LAFEBER, FLORIS P. J. G., FLIK, GERT AND WENDELAAR BONGA, SJOERD E. Ionic and total calcium levels in the blood of the European eel (*Anguilla anguilla*): effects of stanniectomy and hypocalcin replacement therapy . 177

HANLON, ROGER T., BIDWELL, JOSEPH P. AND TAIT, RICHARD. Strontium is required for statolith development and thus normal swimming behaviour of hatchling cephalopods 187

SANDEMAN, DAVID C. Physical properties, sensory receptors and tactile reflexes of the antenna of the Australian freshwater crayfish *Cherax destructor* 197

HADLEY, NEIL F., TOOLSON, ERIC C. AND QUINLAN, MICHAEL C. Regional differences in cuticular permeability in the desert cicada *Diceroprocta apache*: implications for evaporative cooling 219

REICHERT, H. AND ROWELL, C. H. F. Invariance of oscillator interneurone activity during variable motor output by locusts 231

ABLE, KENNETH, P. Skylight polarization patterns and the orientation of migratory birds 241

PAUL, DOROTHY H. Nonspiking stretch receptors of the crayfish swimmeret receive an efference copy of the central motor pattern for the swimmeret 257

STEPHENSON, R., TURNER, D. L. AND BUTLER, P. J. The relationship between diving activity and oxygen storage capacity in the tufted duck (*Aythya fuligula*) 265

BERLIND, A. Feedback from motor neurones to pacemaker neurones in lobster cardiac ganglion contributes to regulation of burst frequency 277

Contents

PAGE

CHAMBERLIN, M. E. Metabolic stimulation of transepithelial potential difference across the midgut of the tobacco hornworm (*Manduca sexta*) 295

LYTHGOE, J. N. AND SHAND, JULIA. The structural basis for iridescent colour changes in dermal and corneal iridophores in fish 313

DE HAAN, A., VAN INGEN SCHENAU, G. J., ETTEMA, G. J., HUIJING, P. A. AND LODDER, M. A. N. Efficiency of rat medial gastrocnemius muscle in contractions with and without an active prestretch 327

REILLY, S. M. AND LAUDER, G. V. Physiological bases of feeding behaviour in salamanders: do motor patterns vary with prey type? 343

WAINWRIGHT, PETER C. Prey processing in haemulid fishes: patterns of variation in pharyngeal jaw muscle activity 359

BUTLER, P. J., AXELSSON, M., EHRENSTRÖM, F., METCALFE, J. D. AND NILSSON, S. Circulating catecholamines and swimming performance in the Atlantic cod, *Gadus morhua* 377

LEVY, MIRIAM, ACHITUV, YAIR AND SUSSWEIN, ABRAHAM J. Relationship between respiratory pumping and oxygen consumption in *Aplysia depilans* and *Aplysia fasciata* 389

TANG, Y., MCDONALD, D. G. AND BOUTILIER, R. G. Acid–base regulation following exhaustive exercise: a comparison between freshwater- and seawater-adapted rainbow trout (*Salmo gairdneri*) 407

NILSSON, GÖRAN, E. Effects of anoxia on serotonin metabolism in crucian carp brain . 419

ISAACSON, LEON AND NICOLSON, SUE. A reappraisal of the oil-gap technique for the measurement of transtubular potentials in insect epithelia 429

SHORT COMMUNICATIONS

DONALD, JOHN A. Adrenaline and branchial nerve stimulation inhibit ^{45}Ca influx into the gills of rainbow trout, *Salmo gairdneri* 441

WALKER, MICHAEL M. AND BITTERMAN, M. E. Attached magnets impair magnetic field discrimination by honeybees 447

GARCIA-SCHEIBLE, ISABEL AND HONEGGER, HANS-WILLI. Peripheral neurosecretory cells of insects contain a neuropeptide with bursicon-like activity 453

BÜSCHGES, A., KOCH, U. T. AND BREUTEL, G. A simple and low-cost illumination system for *in vivo* fluorescent visualization of neurones 464

INFORMATION ABOUT THE JOURNAL